



U.S. Insulation Industry Building Decarbonization Statement of Policy Principles

Energy conservation is the core value proposition of building insulation. Our industry delivers a product that cost-effectively optimizes the thermal performance of buildings with insulation materials that are safe to use and promote a cleaner environment. Over the past twenty years, insulation manufacturers have innovated products that are safer for the ozone with lower global warming potential. Many types of insulation contain recycled ingredients. Finally, the insulation industry is a leader in promoting material transparency, with environmental product declarations available for the full range of insulation products used in the building construction market.

The energy efficiency requirements in today's building codes and standards are the cornerstones of building decarbonization.

- Maximizing energy efficiency should be the primary goal when integrating building decarbonization goals into energy codes and standards. Efficient building envelopes optimize building energy use irrespective of fuel type and enable other building decarbonization strategies like electrification and smart building technologies.
- Building decarbonization requires a two-part strategy: (1) reduce carbon emissions from the power used to operate the building and (2) pursue a whole-building goal to reduce the embodied energy of building materials and components. This approach should allow for design flexibility and avoid prescriptive requirements that lead to material de-selection which compromises building performance and long-term operational savings.
- Building insulation optimizes the thermal efficiency of a building's envelope, HVAC, and piping systems, which reduces the building's carbon footprint through lower heating and cooling energy consumption. This is especially important where access to low carbon power sources is limited.
- A fully optimized building envelope enables the efficient use of low carbon power sources such as renewable electricity to manage peak utility load demand and achieve zero energy building goals. Policies that incentivize or require the use of renewable electricity should never be used as a rationale for weakening current energy code building envelope standards.

- Energy code trade-offs that weaken building envelope standards in exchange for more efficient HVAC systems should be avoided because they do not advance whole building decarbonization and do not result in overall savings. Such trade-offs increase operational costs over the life of the building.

Federal Building Performance Standards can be used to rapidly decarbonize the federal government's building portfolio.

- The construction and alteration of federally owned and leased buildings should comply with the building envelope, mechanical and hot/cold water piping requirements of the 2021 IECC (and ASHRAE 90.1-2019). Doing so will leverage energy efficiency as the primary means of whole building decarbonization.
- Building energy codes and performance standards should consider the service life of building components and encourage building retrofits to drive significant building envelope and mechanical system insulation improvements over time. This is especially true for existing buildings built prior to the widespread adoption of modern energy codes and standards.
- The federal government should adopt a building performance standard to prioritize investment in building envelope and mechanical insulation upgrades. Such upgrades deliver life-of-the-building energy savings yet are frequently overlooked by energy performance contracts entered into by the federal government.

To supplement policies that reduce operational carbon through rigorous energy efficiency requirements, Buy Clean policies may be adopted to establish whole building embodied carbon targets.

- Buy Clean policies should aspire to a carbon metric that establishes goals for the whole building (embodied and operational) carbon footprint.
- Insulation products should not be a high priority for inclusion in Buy Clean policies:
 - Insulation materials save far more energy/carbon than the energy/carbon required for their manufacture. The embodied energy/carbon is typically recouped within a short period of time after installation relative to the building's full lifespan.
 - Insulation may not be a significant contributor to the total embodied carbon footprint of most buildings when compared to the contributions of carbon-intensive materials used for structural components and, in many applications, insulation can last the full lifespan of the building.
 - Insulation provides many life safety benefits to the building and its occupants, including energy efficiency, fire performance, moisture control, building resilience, passive survivability, thermal comfort, and noise control.

- Where Buy Clean regulatory frameworks include insulation, they should be for the purpose of transparency and awareness of the global warming potential (“GWP”) associated with particular product categories. First, insulation materials are typically not significant contributors to a building’s total carbon footprint. Second, the variances between the embodied energy/carbon of modern insulation products are not significant. Policies that restrict the use of one insulation product over another based on a threshold GWP limit will not result in meaningful reductions in the whole building’s embodied carbon footprint.
- State Buy Clean policies should be in addition to the adoption of the 2021 IECC/ASHRAE 90.1-2019, not in lieu of updated residential and commercial energy code compliance. These energy code and standard policies have been determined by the U.S. Department of Energy¹ to be cost effective in reducing building energy and carbon use. Addressing operational carbon through building energy efficiency provides additional benefits, including home affordability and reducing energy cost burdens for low-income households. Building energy efficiency also achieves public health benefits through avoided utility plant emissions.
- Safeguards are needed to help ensure that the life cycle analyses (LCAs) and environmental product declarations (EPDs) used to evaluate the GWP of products enable accurate comparisons between products covered by the same product category rule. These safeguards include:
 - Resolving conflicts and variances between product material databases;
 - Harmonizing software systems used to generate LCAs and EPDs of products;
 - Setting conditions on EPD requirements to support accurate measurement of all relevant environmental impacts;
 - Establishing clear compliance guidelines for stakeholders subject to a Buy Clean regulation;
 - For greater transparency, make all EPDs used for product purchases under a Buy Clean regulation publicly available; and
 - Enabling the inclusion of the product’s operational carbon reduction benefits within EPDs.

¹ <https://www.energy.gov/sites/default/files/2021-07/2021-iecc-final-determination.pdf>;
<https://www.govinfo.gov/content/pkg/FR-2021-07-28/pdf/2021-15971.pdf>